

REMARKS

This application was finally rejected. By way of a Request for Continuing Examination, this amendment is presented. It is believed that in addition to claims already allowed and allowable, method claims beginning with claim 20 as presently amended would also be allowable.

Claim 1 is allowable subject to correction of an informalities. This has been attended to by the above amendment.

Claim 10 has been allowed.

As to claim 20, the cited informalities have also been corrected along with the other amendments made above.

New claims 30 and 31 are added more particularly to define the control over the supply of water and of binder.

Method claims starting with claim 20 remain the issue. Here the undersigned starts his task by expressing his and the applicant's personal and professional appreciation for the Examiner's valued suggestion on page 10 of the instant Office action, commenting that claim 20 would have been allowable had the suggestion on page 7 of the Office action dated November 20, 2006 been adopted. The issue was the use of the word "temporally" as it relates to the Gunther reference.

The Examiner's suggestion was to use the term "simultaneously" instead. On reflection and after considerable discussion, this suggested definition has been recognized as both

reasonable and correct, and is adopted substantially (but not exactly, as will be discussed) as suggested by the Examiner. As to the suggested amendment, the undersigned takes full responsibility for what he has done with it.

A review of Gunther 5,967,700, the principal rejection, will show that this early patent in this field first prepared the situs with water- on the tool's way down. Then the fully watered situs awaited injection of the binder, which was supplied on the tool's way up and out of the situs. This works in many soils where drainage is slow enough not to matter. However, in some other soils water can drain excessively during the process time, and whatever water drained away is not available to make the most correct mixture.

Correction of this situation is the object of this invention. This object is to form an optimum column from top to bottom by injecting the proper amount of water and binder at respective depths. The water includes what is already there plus what is to be added. Water or binder, or both can be added at depths as needed under control of the system.

As previously proposed, this was defined as a temporal matter. Everything was done in sufficient time. As the Examiner stated, there is some kind of temporality in Gunther '700, also, and suggested that "simultaneous" would be more precise.

Applicant's process is one which uses brute tooling. A track

laying vehicle carries a boom that supports the vertical tool shaft and mechanism that both drives the tool into the ground and pulls it out, while rotating it so as to drive it into and out of the formation, often to depths of 60 feet or more.

In addition, the tool shaft incorporates conduitry to convey water and dry binder to the emission ports. The binder is driven by pressurized air, which takes a compressor, and the vehicle may carry tanks of water and binder unless they are provided on separate vehicles. It is very heavy equipment.

This is a rough outdoor place to work and the tooling must be sufficiently rugged. Accordingly the tool shaft itself is heavy and the tool face (the vanes) must be rugged and be reasonably replaceable.

As a consequence, often the emission ports of the water and binder are placed at different but close levels on the tool, and point in different directions in the bore. Depending on the tool, the exiting streams may not directly intersect (although they might), but the emissions from the injector binder and the water injector preferably occur simultaneously, although there may be a moment or so before the emission of one encounters the emission of the other. This is the temporality that was previously discussed.

The suggested simultaneously is equally descriptive. If both exit from the tool simultaneously, then in any suitably

constructed rotating and advancing tool, their emissions will appropriately meet. Here it is commented that specific water, for example, water at a specific level may not meet binder emitted at that same level at that same moment, but with this tool it makes no difference. The rate of tool progress and related rotation are such that the in-situ mixture will be correct.

While the two streams are discharged simultaneously, it may be that the next rotation or part of a rotation will provide the intended encounter. The simultaneous discharge from both sources thereby provides the same advantage whether the two streams immediately collide or whether their intersection at a specific depth occurs a moment or so later.

The term "radially away" which describe the exit path of the injected material has been changed to "away". The term radially was not intended to limit the path to one that is normal to the axis of rotation. It merely is one that jets out of and away from the shaft. This is amply supported by the specification as filed.

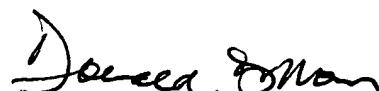
It is submitted that the claims as now presented clearly define over Gunther '700.

The claims dependent from claim 20 derive their patentability from their parent claim, and are therefor patentable over Gunther and over Gunther combined with Hocking.

However, as to claims 21 and 24, the rejection relies on the doctrine of reversal of parts, certainly a well-respected doctrine. Still its effect is limited to providing the same result in substantially the same way. Gunther contemplates the initial and separate supply only of water on the way down, all the way down. Only after that is done is binder added, only on the way up. The binder in this invention is intended to be added simultaneously with water so that a local correct mixture is formed. It is submitted that Gunther gives no hint of first injecting binder into a region not already prepared with added water on the way down. The reversal of order of injection of binder and water would not create the column, or correct the water that is Gunther's objective in patent '700. It is submitted that the doctrine of reversal is not applicable in this case. Claims 21 and 24 are believed to define an additional novel feature and should be allowable in their own right.

Reconsideration of this patent application and allowance of the claims are respectfully solicited.

Respectfully submitted,



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